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REMARKS**

Applicants appreciate the consideration shown by the Office, as evidenced by the Final Office Action, mailed on December 6, 2002. In that Office Action, Claims 9 and 11-25 were rejected by the Examiner. Claims 1-8 have been withdrawn from consideration. As such, Claims 1-8, 9, and 11-25 remain in the case with none of the claims being allowed.

The December 6 Final Office Action has been carefully considered. After such consideration, Claims 9, 13, 14, 16, and 21 have been amended. Applicants respectfully request reconsideration of the application by the Examiner in light of the above amendments and the following remarks offered in response to the December 6 Final Office Action.

Claims 9-15 and 21-25 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Gravemann (U.S. Patent 4,702,299) in view of Blackburn et al. (U.S. Patent 4,820,356). Claims 16-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Blackburn et al.

Applicants submit that Claims 9, 14, 16, and 21 have each been amended to more clearly describe the order in which the steps of the claimed method are performed. Accordingly, Claim 9 has been amended to recite the limitation of *immediately* quenching the rigid die insert from the first predetermined temperature to room temperature. Claim 11 has been amended to recite the limitation that the rigid die insert immediately following step of heat treating the rigid die insert to a first predetermined temperature and immediately prior to quenching the rigid die insert. Claim 14 has been amended to recite the limitation that the step of aging the rigid die insert is carried out at a second predetermined temperature that is at least 400°F less than the first predetermined temperature. Claim 16 has been amended to recite the limitations of immediately quenching the rigid die insert from the first predetermined temperature to room temperature and aging the rigid die insert is carried out at a second predetermined

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temperature that is at least 400°F less than the first predetermined temperature. Claim 21 has been amended to recite the limitations of immediately_forced-air cooling the rigid die insert from the first temperature, quenching the rigid die insert in a room temperature bath immediately after forced-air cooling, and aging the rigid die insert is carried out at a second predetermined temperature that is at least 400°F less than the first predetermined temperature.

Applicants submit that, in order to establish a *prima facie* case of obviousness, the references must teach or suggest all of the claimed limitations of the present invention. The requisite suggestion or motivation must come from the references themselves, rather than from the Applicants' specification. Obviousness cannot be established by locating references, which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force, which would impel one skilled in the art to do what the patent applicant has done.

Accordingly, Applicants submit that the combination of Gravemann and Blackburn et al. do not teach or suggest all of the limitations of amended independent Claims 1 and 21. Specifically, neither reference teaches nor suggests quenching (as recited in Claim 1) or air-cooling followed by immediate quenching (as recited in Claim 21) *immediately* following heat treating the rigid die insert at the first temperature. Gravemann is silent as to the treatment of partial metal inserts (4, 5 in Figure 1, for example). Blackburn teaches a first treat treatment at a temperature 15-50°F below the gamma-prime solvus temperature (column 2, lines 34-37) followed by *controlled* cooling to a second temperature (column 2, lines 41-44), after which the article is rapidly cooled (column 2, lines 51-53).

Applicants further submit that neither reference teaches dissolving gamma-prime particles and growing additional gamma-prime particles in the rigid die insert that are *smaller* than the gamma-prime particles that are dissolved, as recited in Claims 1 and 21. Applicants submit that Gravemann is silent as to the dissolution and growth of gamma-prime particles, and that Blackburn et al. actually teach *away* from growing *smaller*

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gamma-prime particles. The reference, in column 2, lines 18-20, states: "An important characteristic of the invention process is that the starting grain size is *held essentially constant* throughout the process (emphasis added)." In addition, the reference, in column 3, lines 65-67, states: "At the conclusion of the invention heat treatment process the article will have a fine grain size which approximates that of the starting grain size..." Thus, Blackburn et al. teach the growth of gamma-prime particles that are the same size as those originally present in the article, *not* the growth of smaller gamma-prime particles, as recited in Claims 1 and 21.

Applicants therefore submit that, because the combination of references neither teaches nor suggests all of the limitations of amended independent Claims 9 and 21, the rejection of Claims 9-15 and 21-25 under 35 U.S.C. §103(a) as being unpatentable over Gravemann in view of Blackburn et al. is successfully overcome.

Regarding Claims 16-20, Applicants submit that Blackburn et al. alone does not teach or suggest the limitation of *immediately* quenching the Rene 95 superalloy from the first predetermined temperature to room temperature in a bath, recited in amended Claim 16. As presented above, the reference instead teaches a first treat treatment at a temperature 15-50°F below the gamma-prime solvus temperature followed by *controlled* cooling to a second temperature, after which the article is rapidly cooled.

Applicants further submit that Blackburn et al. neither teach nor suggest dissolving gamma-prime particles and growing additional gamma-prime particles in the rigid die insert that are *smaller* than the gamma-prime particles that are dissolved, as recited in Claim 16. As previously presented, the reference instead describes the growth of gamma-prime particles that are the same size as those originally present in the article and thus teaches away from the limitations recited in Claim 16.

Applicants therefore submit that, because Blackburn et al. neither teach nor suggest all of the limitations of amended independent Claim 16, the rejection of Claims

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16-20 under 35 U.S.C. §103(a) as being unpatentable over Blackburn et al. is successfully overcome.

In light of the amendment and remarks presented herein, Applicants submit that the case is in condition for immediate allowance and respectfully requests such action. If, however, any issues remain unresolved, the Examiner is invited to telephone the Applicants' counsel at the number provided below.

Respectfully submitted,

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predetermined temperature. Claim 17 has been amended to recite the limitation that the die insert is heat treated *at* a first predetermined temperature. Claim 21 has been amended to recite the limitations of immediately forced-air cooling the rigid die insert from the first temperature, quenching the rigid die insert in a room temperature bath immediately after forced-air cooling, and aging the rigid die insert is carried out at a second predetermined temperature that is less than the first predetermined temperature.

Applicants submit that, in order to establish a *prima facie* case of obviousness, the references must teach or suggest all of the claimed limitations of the present invention. The requisite suggestion or motivation must come from the references themselves, rather than from the Applicants' specification. Obviousness cannot be established by locating references, which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force, which would impel one skilled in the art to do what the patent applicant has done.

Accordingly, Applicants submit that the combination of Gravemann and Blackburn et al. do not teach or suggest all of the limitations of amended independent Claims 1 and 21. Specifically, neither reference teaches nor suggests quenching (as recited in Claim 1) or air-cooling followed by immediate quenching (as recited in Claim 21) *immediately* following heat treating the rigid die insert at the first temperature. Gravemann is silent as to the treatment of partial metal inserts (4, 5 in Figure 1, for example). Blackburn teaches a first treat treatment at a temperature 15-50°F below the gamma-prime solvus temperature (column 2, lines 34-37) followed by *controlled* cooling to a second temperature (column 2, lines 41-44), after which the article is rapidly cooled (column 2, lines 51-53).

Applicants further submit that neither reference teaches dissolving gamma-prime particles and growing additional gamma-prime particles in the rigid die insert that are *smaller* than the gamma-prime particles that are dissolved, as recited in Claims 1 and 21. Applicants submit that Gravemann is silent as to the dissolution and growth of gamma-

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prime particles, and that Blackburn et al. actually teach *away* from growing *smaller* gamma-prime particles. The reference, in column 2, lines 18-20, states: "An important characteristic of the invention process is that the starting grain size is *held essentially constant* throughout the process (emphasis added)." In addition, the reference, in column 3, lines 65-67, states: "At the conclusion of the invention heat treatment process the article will have a fine grain size which approximates that of the starting grain size..." Thus, Blackburn et al. teach the growth of gamma-prime particles that are the same size as those originally present in the article, *not* the growth of smaller gamma-prime particles, as recited in Claims 1 and 21.

Applicants therefore submit that, because the combination of references neither teaches nor suggests all of the limitations of amended independent Claims 9 and 21, the rejection of Claims 9-15 and 21-25 under 35 U.S.C. §103(a) as being unpatentable over Gravemann in view of Blackburn et al. is successfully overcome.

Regarding Claims 16-20, Applicants submit that Blackburn et al. alone does not teach or suggest the limitation of *immediately* quenching the Rene 95 superalloy from the first predetermined temperature to room temperature in a bath, recited in amended Claim 16. As presented above, the reference instead teaches a first treat treatment at a temperature 15-50°F below the gamma-prime solvus temperature followed by *controlled* cooling to a second temperature, after which the article is rapidly cooled.

Applicants further submit that Blackburn et al. neither teach nor suggest dissolving gamma-prime particles and growing additional gamma-prime particles in the rigid die insert that are *smaller* than the gamma-prime particles that are dissolved, as recited in Claim 16. As previously presented, the reference instead describes the growth of gamma-prime particles that are the same size as those originally present in the article and thus teaches away from the limitations recited in Claim 16.

Applicants therefore submit that, because Blackburn et al. neither teach nor suggest all of the limitations of amended independent Claim 16, the rejection of Claims

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16-20 under 35 U.S.C. §103(a) as being unpatentable over Blackburn et al. is successfully overcome.

In light of the amendment and remarks presented herein, Applicants submit that the case is in condition for immediate allowance and respectfully requests such action. If, however, any issues remain unresolved, the Examiner is invited to telephone the Applicants' counsel at the number provided below.

Respectfully submitted,



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